C L A I M S

1. A distributor characterized by comprising:

an oscillator which outputs electromagnetic waves;

a first square waveguide to be connected to said oscillator; and

a second square waveguide having a plurality of openings,

wherein said first square waveguide and said second square waveguide communicate with each other through a communication hole formed in one narrow wall of each of said first square waveguide and said second square waveguide.

2. A distributor according to claim 1, characterized in that said first square waveguide comprises a guide wall which projects from the other narrow wall toward the communication hole and guides the electromagnetic waves propagating in said first square waveguide toward the communication hole.

3. A distributor according to claim 2, characterized in that the electromagnetic waves which are reflected by said guide wall and travel in an opposite direction in said square waveguide and the electromagnetic waves which are reflected by an end of said first square waveguide cancel each other.

4. A distributor according to claim 3,

characterized in that

said guide wall is arranged to oppose the communication hole, and

said end of said first square waveguide is arranged at a position away from said guide wall by an integer multiple of substantially 1/2 a tube wavelength of said first square waveguide.

5. A distributor according to claim 1, characterized in that said second square waveguide comprises a conductive column which is arranged in the vicinity of the communication hole and extends between opposing wide walls.

6. A demultiplexer according to claim 1, characterized in that said first square waveguide and said second square waveguide have different relative dielectric constants.

7. A plasma processing system characterized by comprising:

a stage to place a target object thereon;

a processing vessel to accommodate said stage;

an antenna assembly having a plurality of radiation waveguides with slots; and

a demultiplexer which distributes electromagnetic waves to said radiation waveguides,

said demultiplexer comprising

an oscillator which outputs the electromagnetic waves,

a first square waveguide to be connected to said oscillator, and

a second square waveguide to be connected to one end of each of said radiation waveguides through a plurality of openings formed therein,

wherein said first square waveguide and said second square waveguide communicate with each other through a communication hole formed in one narrow wall of each of said first square waveguide and said second square waveguide.

8. A plasma processing system according to claim 7, characterized in that each of said radiation waveguides has a standing wave driving slot, on the other end of a side wall thereof, to be driven by standing waves which are formed of traveling waves traveling from said one end toward said other end and reflected waves reflected by said other end toward said one end.

9. A plasma processing system according to claim 8, characterized in that said standing wave driving slot is formed at a position away from said other end toward said one end by a natural number multiple of substantially 1/2 a tube wavelength of a corresponding one of said radiation waveguides.

10. A plasma processing system according to claim 8, characterized in that each of said radiation waveguides comprises a reflecting member which is

arranged on a side of said one end, when seen from said standing wave driving slot, and reflects part of the traveling waves toward said one end to cancel the reflected waves which are reflected by said other end or said standing wave driving slot.

11. A plasma processing system according to claim 10, characterized in that said reflecting member is arranged at a predetermined position between a center position of said standing wave driving slot and a position away from the center position toward said one end by substantially 3/2 the tube wavelength of said corresponding one of said radiation waveguides.

12. A distributing method characterized by comprising the steps of:

introducing electromagnetic waves propagating in a first square waveguide into a second square waveguide through a communication hole formed in one narrow wall of each of the first square waveguide and the second square waveguide; and

distributing the electromagnetic waves introduced into the second square waveguide to a plurality of waveguides through a plurality of openings formed in the second square waveguide.

13. A plasma processing method characterized by comprising the steps of:

introducing electromagnetic waves propagating in a first square waveguide into a second square

waveguide through a communication hole formed in one narrow wall of each of the first square waveguide and the second square waveguide;

distributing the electromagnetic waves introduced into the second square waveguide to a plurality of radiation waveguides through a plurality of openings formed in the second square waveguide;

supplying the electromagnetic waves introduced into the radiation waveguides to a processing vessel through a slot formed in each of the radiation waveguides; and

processing a target object placed in the processing vessel utilizing a plasma which is generated by the electromagnetic waves supplied to the processing vessel.

14. A process for fabricating an LCD, characterized by comprising the steps of:

introducing electromagnetic waves propagating in a first square waveguide into a second square waveguide through a communication hole formed in one narrow wall of each of the first square waveguide and the second square waveguide;

distributing the electromagnetic waves introduced into the second square waveguide to a plurality of radiation waveguides through a plurality of openings formed in the second square waveguide;

supplying the electromagnetic waves introduced

into the radiation waveguides to a processing vessel through a slot formed in each of the radiation waveguides; and

subjecting a surface of an LCD substrate arranged in the processing vessel to a process such as etching, ashing, oxidation, nitridation, or CVD utilizing a plasma which is generated by the electromagnetic waves supplied to the processing vessel.